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Differential classification of juvenile offenders

Marc Ethan Castellani
University of Tennessee

To the Graduate Council:

I am submitting herewith a dissertation written by Marc Ethan Castellani entitled "Differential classification of juvenile offenders." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Robert G. Wahler, Major Professor

We have read this dissertation and recommend its acceptance:

Cheryl Buehler, Richard Saudargas, Deborah Welsh

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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DIFFERENTIAL CLASSIFICATION OF JUVENILE OFFENDERS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Marc Ethan Castellani

August, 2002

Dedication

This dissertation is dedicated to my children:

Jordan Lazare, for teaching me joy,
and Michael Joseph, for teaching me perseverance.

And to my wonderful wife, Jodie, the desire of my heart.

I love you with all my heart. You are truly gifts from God.

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Finally, I thank my family: my wife, Jodie; my children Jordan and Michael; my parents Bob and Betty; and my sister Robyn. In different ways through the years, they offered encouragement and support, and I am grateful for the people I share my life with.

Abstract

One hundred adolescents facing charges in criminal court were evaluated and examined for factors that discriminate them from each other. Cluster analysis based on self-report and parent-report instruments resulted in five groups of youth who could be differentiated based on internalizing and externalizing measures. These clusters were examined for differences in several areas. No differences in IQ scores, executive functioning, or number or severity of charges were found, as the literature on conduct disorder might suggest. However, differences were found in the number and type of diagnoses given to subjects in the different clusters. These findings are discussed in light of the literature on conduct disorder and previous clustering attempts. It is argued that juvenile offenders have typically been evaluated and understood primarily in terms of their externalizing behaviors, while not enough attention has been paid to internalizing behaviors.

Table of Contents

Chapter 1

Introduction

Juvenile delinquency is not rare; in fact, statistics indicate that up to 70% of adolescents engage in some form of delinquent behavior (e.g. Farrington, 1995). Although many of these crimes are status offenses—meaning they are only illegal because the child is a minor, such as underage drinking, truancy or runaway—there is still a substantial number of teenagers engaging in more serious crimes. Farrington (1995) stated that although between 20-35% of teenagers are arrested for victim-oriented crimes such as robbery and assault, there is an even smaller group that is more concerning: approximately five percent of juveniles are repeat offenders, those children who tend to become career criminals. Of particular interest is the fact that these repeat offenders are much more likely than other delinquents to have been diagnosed with disruptive behavior disorders such as Attention Deficit Disorder or Conduct Disorder (Magnusson, Klinteberg & Stattin, 1994). In fact, up to 50-80% of delinquents have probably been diagnosed with at least one mental health diagnosis, with the disruptive behavior disorders being among the most common (Kazdin, 2000).

This is not surprising given the nature of the Conduct Disorder diagnosis. Conduct Disorder (CD) has been typically diagnosed and understood primarily by its antisocial behavioral symptoms. In fact, the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) lists only behaviors "in which the basic rights of others or major age-appropriate societal norms or rules are violated" (90) as indicators of the disorder (American Psychiatric Association, 1994). Kazdin (2000)

pointed out that based on this definition "the distinction between delinquency and mental disorder is not always sharp, and individuals can readily meet criteria for both based on the same behaviors" (p. 29).

However, CD is not the only diagnosis juvenile delinquents commonly receive, particularly because many other psychiatric disorders have been linked to CD. Numerous studies have examined the relationship between CD and comorbid emotional behaviors (e.g. Renouf, Kovacs & Mukerji, 1997; Bird, Gould, & Staghezza, 1993; Capaldi, 1992; Chiles, Miller, & Cox, 1980), while others have explained CD as stemming from children growing up in hostile and discordant environments that frequently lead to severe emotional disturbances as well (e.g. Farrington, 1995; Magid & McKelvey, 1987; Cummings, Davies & Campbell, 2000l; Pettit, Bates, & Dodge, 1993). In both cases, CD children were found to be more emotionally troubled than children not diagnosed with CD are. These findings indicate that not all children diagnosed with CD are alike; other factors—such as their emotional and cognitive functioning or their social environment—must be considered in order for clinicians to utilize the most effective treatment interventions.

Lambert, Wahler, Andrade, and Bickman (2001) examined the question of comorbid diagnoses with CD, and found that children diagnosed with CD tended to have a wider range of problems than did children with other diagnoses; they also were more likely to have comorbid diagnoses, as "having two or more primary diagnoses was the rule, not the exception" (p. 120). This study found that children diagnosed with CD were described as having more internalizing problems (e.g. withdrawal, somatization, anxiety and depression) than other children, and their treatment prognosis was found to be less

favorable than that of children who had diagnoses other than CD. Their data strongly supported the argument that CD encompasses more than just externalizing behavior problems, and that underlying emotional and cognitive factors must be taken into consideration.

There also are questions about whether CD is a separate entity from other diagnoses, particularly the disruptive behavior disorders. Skodol and Oldham (1996) discussed research indicating that supposedly incongruent diagnoses responded well to similar pharmacological agents, and concluded "The notion that all 200+ DSM-IV categories represent discrete disorders with distinctive etiologies and pathogenic mechanisms is patently naïve, and the search is on for more fundamental psychopathological disturbances" (p. 2). Newcorn and Halperin (2000) argued that although factor-analytic studies have not proven that hyperactivity and conduct problems are distinct, "recent research indicates that ADHD and conduct problems do not represent variations on a single theme" (p. 177). They point out that children with either diagnosis alone have different symptoms, different social dynamics and issues, and perform differently on ADHD measures. Abikoff and Klein (1992) agreed, and stated, "There is some evidence to indicate that these behavioral and clinical domains [for ADHD, CD and Oppositional Defiant Disorder] are not redundant but rather have some discriminant validity based on differential correlates" (p. 882). They noted that children diagnosed with ADHD tended to have lower IQ scores and lower academic achievement than did children diagnosed with CD, while CD children had more familial and environmental problems (such as higher rates of parental psychopathology, maternal rejection, poor parental supervision and paternal alcohol abuse). Other research indicates that although

CD and ADHD involve demonstrably different behaviors and are rightly considered distinct (Frick, 1994; Hinshaw, 1987), the differences between ODD and CD are more a matter of degree and should perhaps be considered parts of the same domain (Frick, 1998).

In summary, data suggest that juvenile delinquents vary widely, from status offenders to persistent, career criminals; in addition, many of these teenagers have been diagnosed with Conduct Disorder, which often coexists with numerous problems in other realms. Therefore, in order to offer the most appropriate and most effective treatment, clinicians must know what type of offender the adolescent is and which disorders must be treated. This study hopes to address these issues by categorizing adolescents in the juvenile court system. First, the existing research on juvenile offenders and CD will be explored, with a specific emphasis on classifications of delinquency and the relationship of CD to other areas of functioning.

Classification of Juvenile Delinquency and Conduct Disorder

In 1993, Moffitt proposed a dual taxonomy to define antisocial behavior in adolescents. As noted above, most adolescents engage in some form of antisocial behavior during their teenage years; in fact, Moffitt made the statement: "Actual rates of illegal behavior soar so high during adolescence that participation in delinquency appears to be a normal part of life" (p. 675). Moffitt discussed one study conducted in New Zealand in which 94% of the adolescents admitted to engaging in some illegal behavior, though only about 7% met criteria for CD and only 6% had been arrested. However, Moffitt makes a distinction between those teenagers whose antisocial activities did not

begin until their adolescence ("Adolescence-Limited") and those who began engaging in these behaviors at an early age ("Life-Course Persistent"). In other words, "timing and duration of the course of antisocial involvement are the defining features in the natural histories of the two proposed types of offenders" (p. 676). Although Moffitt believes the first type of adolescent is engaging in essentially "normal" behavior, the second type represents those children who become career criminals (hence the term "life-course persistent"). Moffitt also notes that the more persistent offenders tend to have both a greater number of charges (as approximately 50% of known crimes are committed by only 5-6% of the offenders), and that these charges tend to be more serious with "more overt aggression" versus "more covert offending" (p. 678).

Cummings, Davies and Campbell (2000) agree that age-of-onset is important when evaluating antisocial behaviors, stating that:

> Adolescent-onset conduct problems are seen as more likely to be age-related and transient, whereas early-onset conduct problems are more likely to reflect serious and persistent psychopathology that may begin as serious oppositional disorder in childhood and then continue into adulthood (p. 351).

Related findings were reported by Lahey et al. (1998), who found that children who met criteria for CD at young ages were much more aggressive than those who did not begin exhibiting these symptoms until they were older. There also is evidence that early-onset of conduct problems is associated with frequent lying, theft and vandalism, as well as greater functional impairment and more frequent use of mental health services (Lahey et al., 1999). Therefore, it appears that children who exhibit antisocial behaviors at a young age are not only at greater risk for ongoing behavior problems, but their

behavior problems tend to be particularly severe. The DSM-IV recognizes these apparent differences by distinguishing between childhood-onset and adolescent-onset types of CD.

Using Moffitt's taxonomy, it is clear that defendants in the juvenile court system should not be automatically grouped together as sociopaths or conduct disordered, because many of them likely started engaging in antisocial acts during adolescence and, therefore, have a much more favorable prognosis. Although the above studies demonstrate the difficulty in predicting which young children will eventually meet criteria for a CD diagnosis, it appears that there are differences in the causes and types of antisocial behavior based on when the problems begin. For example, there is evidence that childhood-onset CD may be related primarily to individual and family factors and often includes more severe and violent behaviors, while the adolescent-onset type may be caused more by associating with deviant peer groups and involve fewer victim-oriented crimes (McCabe, Hough, Wood & Yeh, 2001). Even this sub-grouping may not distinguish adequately children diagnosed with CD, since so many factors appear to play a role in its development and expression. Lambert et al. (2001) discussed the rate of comorbidity in children diagnosed with CD, and made it clear that these children often meet the criteria for other mental health diagnoses. In addition, several factors have been linked to a CD diagnosis, including neurological and cognitive deficits (e.g. Moffitt, 1993), environmental and family stressors (e.g. Fendrich, Warner & Weissman, 1990), and even genetic influences (e.g. Simonoff P, 1998). The next section of this paper will examine the research on some of these relationships.

Conduct Disorder and ADHD

One diagnosis closely linked to Conduct Disorder is Attention Deficit Hyperactivity Disorder, and Frick argued "There is no better illustration of the clinical importance of comorbid disorders than the co-occurrence of ADHD and conduct disorders (1998, p. 33). Newcorn and Halperin (2000) noted that even though the symptoms for CD, Oppositional Defiant Disorder (ODD) and Attention Deficit Hyperactivity Disorder (ADHD) are disparate, the fact that they coexist so frequently suggests that they are actually quite similar. Abikoff and Klein (1992) cited studies indicating that ADHD is diagnosed in between 20% and 60% of children diagnosed with CD or Oppositional Defiant Disorder, and noted that "the rate of ADHD has been reported to be as high as 90% among children referred for conduct disorders" (p. 881). Similarly, Jensen, Martin and Cantwell (1997) reported that a review of studies examining the relationship between ADHD and other diagnoses indicated, "the comorbidity between ADHD and CD/ODD is relatively high (42.7% to 93.0%)" (p. 1067). The importance of ADHD in this regard is also noted by Farrington (2000), who states that hyperactivity, impulsivity, behavior problems and attention problems are among the most robust predictors of adolescent violence.

Christie and Mitchell (2001) offered a possible explanation for this relationship by noting that, "The most basic and accurate way to describe ADHD is as a delay in the development of response inhibition. This leads to deficits in executive functioning (or self-control) and ultimately to a significant impairment in self-regulation (p.11)." A child who is unable to adequately control their behavior is certainly more likely to engage in the aggressive and delinquent behaviors symptomatic of CD. Abikoff and Klein (1992)

offered support for this hypothesis with the comment "Impulsivity is posited as the key feature to both [ADHD and CD]" (p. 883), and other studies have found that delinquent children are frequently impulsive (e.g., White et al., 1994). However, while children with ADHD commonly receive other diagnoses (Christie & Mitchell, 2001), most of them will not exhibit symptoms of CD or antisocial personality disorder. Herrero, Hechtman and Weiss (1994) suggested that only 23% to 27% of children with hyperactive symptoms are eventually diagnosed with CD or Antisocial Personality Disorder (APD), although Newcorn and Halperin (2000) reported that several epidemiological studies indicate that ODD and CD are found in anywhere from 40%-70% of children with ADHD.

Newcorn and Halperin (2000) added the sobering finding that children diagnosed with both ADHD and conduct problems tend to have worse outcomes than do children diagnosed with only one disorder. Lynam (1998) echoed this finding: he reported that adolescent boys with both conduct problems and hyperactive, impulsive, and attention problems were more similar to psychopathic adults on several measures than adolescent boys with either hyperactive, impulsive and attention problems *or* conduct problems, suggesting that it is the combination of these symptoms that is particularly detrimental to a child's functioning. Thus, comorbidity of ADHD and CD is both fairly common and indicative of severe and long-term behavior problems.

Conduct Disorder and Depression and Anxiety

Lambert and colleagues (2001) pointed out that children's externalizing and internalizing behaviors often are highly correlated, and research frequently has demonstrated the comorbidity of affective disorders with conduct disorders. Research

indicates that between 60%-75% of clinic-referred CD children also are diagnosed with an anxiety disorder (Russo & Beidel, 1994; Zoccolillo, 1992), while depression is found in conduct disordered children in 15%-31% of the cases (Zoccolillo, 1992). One study of delinquents found that almost 25% also have Major Depression (Chiles, Miller & Cox, 1980), and another found Conduct Disorder in 16% of depressed preadolescents and 14% in depressed adolescents (Mitchell, McCauley, Burke & Moss, 1988). Research also suggests that externalizing behaviors are found more often in dysthymic children than those with Major Depression (Ferro, Carlson, Grayson & Klein, 1994). This may explain the extremely high comorbidity found in a 1993 study by Bird, Gould and Staghezza, who reported that 82% of the Conduct Disorder children in their sample of Puerto Rican children also met criteria for a depressive disorder (either Major Depression or Dysthymia).

What is particularly alarming is the association between comorbid depression and conduct disorders and the rate of suicide. Shaffer (1974) found that 71% of a group of adolescents who committed suicide had a history of significant conduct problems. Apter and colleagues (1988) found that inpatient adolescents diagnosed with CD were significantly *more* suicidal while also being significantly *less* depressed than adolescents diagnosed with Major Depressive Disorder. They reported that adolescents who attempted suicide often denied being depressed, but said they were frustrated and agitated from pent-up aggression. Capaldi (1992) found that 31% of children with comorbid depression and CD reported suicidal ideation, though only 12% of CD-only children reported this. It appears that the combination of depression and aggression may be particularly likely to result in suicidal behaviors.

Frick (1998) believed that these symptoms of anxiety and depression were related to the repeated failure experiences (e.g. with peers, family members, at school) and interpersonal conflict that CD children typically experience. However, while depression does not appear to change the course of CD in any remarkable way, anxiety does. Some children become more anxious as the severity of their conduct problems grows (as predicted by the above hypothesis), but there appears to be a subgroup of CD children for whom this is not the case. Frick (1998) reported that CD children with callous-unemotional traits were relatively less distressed by their own behaviors than children without these traits, as evidenced by fewer symptoms of anxiety despite more severe behavior problems. Because the level of distress often is a motivating factor for children to change their behaviors, those who are more calloused and less emotional are less likely to improve. In this sense, the presence of anxiety in a child with CD may be a positive treatment indicator.

Conduct Disorder and Cognitive Functioning

Farrington (2000) noted that low intelligence and low school achievement are strong predictors of adolescent violence, a finding that has been demonstrated repeatedly in the literature. Speltz and his colleagues (1999) stated "There is a well-known but poorly understood relation between neuropsychological functioning and persistent disruptive or antisocial behavior" (p. 315), citing findings that CD children tend to have lower verbal IQ scores, language skills, and executive functioning abilities than their peers.

Moffitt (1993) said "the link between neuropsychological impairment and antisocial outcomes is one of the most robust effects in the study of antisocial behavior" (p. 680), and identified two areas that seem particularly important: verbal deficits (including receptive listening, expressive speech, memory and problem solving) and executive functioning deficits (including inattention and impulsivity). This was particularly important for Moffitt's taxonomy, as she proposed that adolescent-limited offenders do not have cognitive impairment to the same degree as life-course offenders. Donnellan, Ge and Wenk (2000) tested this hypothesis, and found some support for it dependent on ethnicity: Caucasian males who were classified as life-course persistent criminals (based on arrest records over a 20 year period) scored significantly lower than adolescent-limited offenders on several cognitive tasks, including measures of academic achievement, verbal and nonverbal intelligence, and general, verbal and numeric intellectual abilities. The differences were less pervasive in the Hispanic sample, and nonexistent in the African-American sample. The authors concluded that Moffitt's hypothesis appeared valid only for Caucasian and Hispanic populations in their study.

An area of cognitive deficits frequently studied with CD children involves academic achievement. Farrington (1987) reported that poor school achievement can predict juvenile delinquency, and Tremblay et al. (1992) suggested that poor school achievement leads to delinquent personality characteristics (though not delinquent behaviors). Frick and his colleagues (1991) cited studies indicating that between 11% and 61% of children with conduct problems also are diagnosed with learning problems, and Kernberg and Chazan (1991) reported that CD children often are diagnosed with reading disabilities. Frick (1998) suggested that this relationship in childhood-onset CD may be

due to its frequent comorbidity with ADHD, if learning problems are evident early in the child's academic career; in adolescent-onset CD, he hypothesized that the relationship was due more to antisocial behaviors stemming from repeated school failures.

One of the most closely studied areas is the relationship between IQ and conduct disorder, and Farrington cited low intelligence as one of the more important predictors of delinquency (1995). Studies suggest that poor performance on verbal IQ tests and verbal memory tasks at 13 years old may predict early onset as well as perseverance of antisocial behaviors (Pennington & Ozonoff, 1996). Lynam, Moffitt and Stouthamer-Loeber (1993) cited numerous studies indicating that delinquents tend to score about eight points lower on IQ tests than nondelinquents, performing particularly worse on verbal (rather than performance) tests. They stated "The existence of this negative relationship is difficult to deny; it is one of the most robust findings across numerous studies of juvenile delinquency" (p. 187). Intelligence also may play a protective role: White, Moffitt and Silva (1989) found that boys and girls with high IQs tended not to engage in serious or persistent delinquent behaviors, and very high IQs seemed to help boys completely avoid delinquent behaviors regardless of other risk factors. Lahey and his colleagues (1995) found that an above-average verbal IQ, coupled with a boy's parents not having Antisocial Personality Disorder, predicted the dissipation of CD symptoms over time.

Lynam, Moffitt and Stouthamer-Loeber (1993) reported that "Where reviewers have disagreed [in terms of the CD and IQ correlation] is with regard to the interpretation of this relation" (p. 187). White, Moffitt and Silva (1989) noted two broad lines of thought about this relationship: one positing a direct relationship between cognitive

functioning and behavioral control and one arguing that indirect effects—such as social control—are important. The first suggests that children with less intellectual capabilities cannot learn the skills necessary to control their behaviors, are impulsive, and fail to consider the consequences of their actions. The second hypothesizes that children with low IQs fail to develop appropriate social relationships—e.g. at school, where they are likely struggling, or with parents due to frequent misbehavior—and therefore do not develop strong bonds with those who could help teach and model appropriate socialization. [This last point may be particularly vital, given the findings that parents' inability to properly socialize their children have been consistently and strongly associated to their children's antisocial behaviors; Loeber & Stouthamer-Loeber, 1986].

Lynam, Moffitt and Stouthamer-Loeber (1993) addressed several possible explanations of the CD-IQ relationships, including whether social class, ethnicity, test effort or school achievement play a factor (as had been argued): they came to the conclusion that low IQ leads to delinquency, as opposed to delinquency leading to a low IQ or some third factor influencing both. They also found that African-American children who did poorly in school were more likely to be delinquent than those who did well, although no such relationship was found among the Caucasians in their sample. Block (1995), analyzing the same data, arrived at an alternative conclusion: he believed that impulsivity (or what he terms "unresilient undercontrol") contributed to both delinquent behavior and low IQ scores.

This is a particularly important point, as the relationship between delinquency and impulsivity is a long-standing one. In fact, impulsivity may be considered one of the primary characteristics of antisocial behavior: Shapiro stated that "the psychopath is the

very model of the impulsive style" (1965, p. 157). In a finding consistent with this link between CD and impulsivity, there is evidence in the literature that children with conduct problems tend to do worse on tasks related to executive functioning, which includes the ability to plan, control and execute behaviors (often associated with frontal-lobe functioning). White and her colleagues (1994) distinguished between two types of impulsivity—cognitive and behavioral—and found that both types were significantly related to IQ (in a negative direction) and delinquency (in a positive direction); as expected, cognitive impulsivity was more closely related to IQ scores and behavioral impulsivity was more closely related to delinquent behaviors. Speltz and his colleagues believe "deficits in executive functions may be more strongly associated with early-onset [conduct problems] as opposed to the late-onset pattern" (1999, p. 315).

Pennington and Ozonoff (1996) arrived at a different conclusion after conducting a review of research, and reported "a frontal hypothesis of antisocial behavior has been frequently advanced, but the neuropsychological evidence for that theory is not very strong" (p. 67). They found that deficits in executive functioning were present when conduct disorders were comorbid with ADHD, but not when CD existed by itself. Therefore, executive functioning deficits were only associated with CD because it is found so often in ADHD children, for whom executive functioning problems are a hallmark characteristic. Hogan (1999) reported similar findings in regards to IQ differences: after reviewing studies examining the relationship between IQ and CD, she found that ADHD was rarely controlled for. When it was, 73% of the studies showed no connection between CD and IQ. Hogan concluded "When pure CD subject *groups* have

been studied, they have not shown mean IQ deficits; in contrast, CD+ADHD children have often shown mean IQ deficits" (p. 320).

This debate provides an example of the difficulty in understanding conduct disordered children: what some researchers consider well-documented findings are disputed by others who have alternative explanations. Deficits in IQ scores (particularly verbal IQ) and executive functioning are frequently found in a CD population; however, ADHD is also a commonly comorbid condition, and may explain these cognitive deficits. Differentiating the cause for such problems—and others these children present—is probably the most challenging task for clinicians working with delinquent children.

Conduct Disorder and Environmental Influences

Farrington (2000) concluded that among the most important childhood predictors of adolescent violence are "antisocial parents, poor child-rearing (harsh and erratic discipline, poor supervision), parental conflict and broken families, low family income and large family size" (p. 35). Studies have linked child externalizing behavior problems to marital violence (Holden & Ritchie, 1991; O'Keefe, 1994), maladaptive parenting styles (Sansbury & Wahler, 1992; Gardner, 1989; Pettit, Bates & Dodge, 1993; Cusinato, 1998), and parental psychopathology (Fendrich, Warner & Weissman, 1990; Nigg & Hinshaw, 1998; Wickramaratne & Weissman, 1998; Merikangas, Dierker, & Szamari, 1998). Frick (1998) reported that commonly-found correlates to CD include parental criminality/antisocial behavior and substance abuse, ineffective parenting skills, marital conflict and divorce, and low SES.

Marital conflict has been linked to externalizing behaviors in children (Krishnakumar & Buehler, 2000; McCord, 1979), but this connection is often explained as being related to parenting. For example, Holden and Ritchie (1991) conducted a study based on what they refer to as the "parenting differences" theory, which says "marital discord is associated with particular child-rearing behaviors that are considered to be detrimental to children's healthy development" (p. 311). Three particular theories were discussed: marital conflict leads to poor parenting through (1) maternal stress, (2) the "spill-over" of negative interactions into parenting, or (3) increased inconsistency. Their study found that stress and inconsistency were both important factors. However, in discussing the relationship between marital conflict and child development, Cummings, Davies and Campbell (2000) claim that not only is parenting a mediating variable, but "the need for a causal arrow *directly* from marital relations to child development is also now indicated" (p. 154).

Several parenting issues have been linked to the development of CD in children. One of the more important appears to be the parents' ability to appropriately socialize their children, since CD children tend to have poor social skills and—as specified by the DSM-IV—regularly violate the rights of others (Loeber & Stouthamer-Loeber, 1986). Two areas that a meta-analysis indicated are also particularly crucial include how involved parents are with their children (e.g. spending time with them, knowing who their friends are, etc.) and how well they supervise their children; deficits in these areas are often related to the development of CD (Loeber & Stouthamer-Loeber, 1986). Finally, parents of CD children tend to be more inconsistent and/or overly-harsh in their use of discipline than other parents (Frick et al., 1992; Shelton, Frick & Wooton, 1996). Gardner

(1994) argues that all these considerations have in common "a basic impairment in the parent's capacity to provide the child with the love, guidance, affection, nurturing, and protection that is so vital to its well-being" (p. 149), which he considers a precursor to the development of CD.

Psychopathology in the parents also is an important factor in the development of pathology in the child. Wickramaratne and Weissman (1998) found that having a parent with Major Depressive Disorder increased the risk of a child having Conduct Disorder (fivefold), anxiety disorders (threefold), and Major Depressive Disorder (eightfold for childhood-onset, fivefold for early-adult-onset). Merikangas, Dierker and Szamari (1998) reported that having parents who were anxious or substance abusers increased a child's risk of developing conduct disorder. But pathology may not be the only consideration: Nigg and Hinshaw (1998) examined parental personality traits from the five-factor model—in addition to pathology—and their relationships to child pathology, particularly the disruptive behavior disorders. They reported that (1) boys with ADHD were more likely to have mothers who were depressed and anxious and a father with a childhood history of ADHD; (2) boys with ADHD and either ODD or CD often had fathers with lower agreeableness, higher neuroticism, and Generalized Anxiety Disorder; and (3) overt behavior problems such as aggression and noncompliance were primarily related to maternal traits (depression, anxiety, high Neuroticism and Agreeableness, and low Conscientiousness) while covert antisocial behaviors were primarily related to paternal traits (history of substance abuse, high Openness). This study suggested that parental pathology is not the only factor that puts children at risk, but even extremes of normal personality traits are implicated.

Conclusion

Delinquent behavior during adolescence may be common, but the more severe and persistent offenders are cause for great concern. This is particularly true given the finding that these persistent juvenile offenders—the ones often diagnosed with Conduct Disorder—frequently continue their activities into adulthood, often with progressively worsening consequences. Clearly, the need for effective prevention and intervention programs is critical. However, research has demonstrated that the syndrome labeled "Conduct Disorder" is a confusing array of symptoms that causes dysfunction in many different areas. Patterson, DeBaryshe and Ramsey (1989) developed a developmental model of antisocial behavior that attempts to take all of these factors into account: ineffective parenting—which is likely worsened by detrimental environmental factors—leads to conduct-disordered behaviors, which in turn lead to school failure and poor social skills. These letdowns result in an increased likelihood of depression and the child developing relationships with deviant peers. It is members of this last group that Patterson and his colleagues believe are at highest risk for continued delinquent behavior into adulthood.

At the center of this model is the question: how does one make sense of these findings? How does one put together variables from such discrepant areas and develop coherent models and logical intervention recommendations? Perhaps an important step that has been missing is proper classification. Are these children truly alike? Does a diagnosis of conduct disorder adequately inform clinicians about the problems a child is

facing? Based on the research conducted with these children, it is increasingly clear that they are a heterogeneous group.

Numerous studies have attempted to classify CD children using different variables, including the presence of callous and unemotional traits (Frick, 1998; Christian, Frick, Hill, Tyler, & Frazer, 1997), MMPI and Jesness profiles (Sorensen & Johnson, 1996), behavior checklists (Frankel, Hanna, Cantwell, Shekim, & Ornitz, 1992; Taylor et al., 1986), and a structured interview (Frick et al., 1991). Kazdin (1996) summarized research on subtyping CD by documenting the following classifications: aggressive versus delinquent types, aggressors versus stealers, overt versus covert antisocial behaviors, and child versus adolescent onset. The amount of research on this topic indicates that CD is a broad category which probably does not distinguish adequately between children who meet its diagnostic criteria. However, the pervasiveness of CD makes it difficult to consider all factors simultaneously, and subtyping theories often focus solely on externalizing behaviors.

The current study is undertaken in an attempt to develop hypotheses about the classification of conduct-disordered children. The subjects in this study were all facing charges in the juvenile court system, and underwent psychological assessments that addressed each of the areas reviewed above: externalizing behaviors, internalizing behaviors, cognitive abilities (including measures of intelligence and executive functioning), and social relationships (with parents and peers). It is hoped that examining these factors concomitantly may lend insight and direction into a more comprehensive and cohesive understanding of delinquent children.

Chapter 2

Method

Subjects

Subjects are 100 adolescents between the ages of 13 and 17 (mean age of 15) who were facing criminal charges in East Tennessee and referred for psychological assessment through a grant program run by a community mental health center. Seventy-three of the subjects are male; 95 are Caucasian, and five are African-American[1]. The purpose of the grant is to conduct psychological evaluations on children in the court system at risk of being placed into state's custody. Through such an evaluation, additional emotional, cognitive and behavioral factors may be discovered and alternative treatments recommended that could prevent the need for taking the child into custody. The courts are encouraged to refer children who have numerous charges, though there are no absolute guidelines on whom they may refer.

Once a child is referred for an evaluation, a Masters-level clinician in either social work or psychology conducts an intake interview with the child and the child's family. The intake clinician collects records from the courts, the child's school, and previous treatments, and schedules the child for psychological testing with a Licensed

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[1] One question that may be raised is why the number of African-Americans in this sample is so small, given that the majority of juvenile State prisoners nationally are African-American and relatively few are Caucasian (US Department of Justice, 1997). Exploring the racial makeup of the four counties from which this sample is drawn likely explains this discrepancy. The 2000 census reports that only 2% of children under 18 years old in these counties were African-American, while 95% were Caucasian; in the county from which most of the sample was drawn, 99% of the children were Caucasian while only .9% were African-American.

Psychological Examiner. The assessment battery typically consists of the following instruments, which are used in the current study.

Test Instruments

Achenbach Behavior Checklists: These behavior checklists are usually completed by the child's primary guardian, one of the child's teachers, and the child. Several scales related to problem behaviors are derived from these reports: internalizing behaviors (including withdrawn, somatic and anxious/depressed), externalizing behaviors (including aggression and delinquent behaviors), and other scales that are not placed in either of the above groups (social problems, thought problems, and attention problems). Achenbach (1991b) developed the problem items on the parent's report form, the Child Behavior Checklist (CBCL), to "enable parents to describe their children's behavioral and emotional problems in a standardized fashion with a minimum of inference" (p. 18). The problem items on the Teacher Report Form (TRF) and Youth Self Report (YSR) are based on the CBCL items, with minor changes that make the forms more appropriate for the respondent. Lowe (1998) reports that these checklists are effective screening instruments for CD, but are most effective as part of an assessment battery.

In the current sample, there were instances where more than one CBCL was completed. However, only one was used to ensure equal weighting for each child. To avoid selection bias, the following rules were followed: priority was given first to a biological parent; then to a biological relative; then to a primary caregiver. For example, a biological father's CBCL was used over a stepmother's; a blood-related grandparent's was used over a grandparent by marriage; and a foster mother who stayed with the child

was used over a foster father who worked out of the home. The majority of CBCLs used in this study were completed by the child's biological mother.

Millon Adolescent Clinical Inventory: The MACI is a self-report 160-item true-false questionnaire completed by the child. It is designed for adolescents ages 13-19 and includes scales in several areas, including personality patterns, expressed concerns, and clinical syndromes specific to this age group. In addition, it has validity scales designed to measure the child's willingness to disclose problems and the child's tendency to present himself in an unrealistically positive or negative manner. The MACI has been shown to have very good internal consistency, test-retest stability, and criterion-related validity (McCann, 1999).

Stress Index for Parents of Adolescents: The SIPA is a 112-item self-report instrument completed by the subject's parents. It measures the amount of stress in the home related to the child's behaviors and the respondent's parenting difficulties, as well as the quality of the parent-child relationship. Reliability and validity data can be found in the SIPA manual (Sheras, Abidin, & Konold, 1998).

Wechsler Intelligence Test: Any child who had not been administered an intelligence test within the past two years (usually by the school system) was administered the Wechsler Abbreviated Scale of Intelligence (WASI). The WASI is composed of four Wechsler subtests, two Verbal (Vocabulary and Similarities) and two Performance (Block Design and Matrix Reasoning). These four subtests were chosen because they have been shown to have high loadings on general intelligence (*g*) and high reliability (WASI manual, 1999). The majority of children who had testing records on file at the school had been administered the Wechsler Intelligence Scale for Children, 3rd

Edition, which has correlations of .82 (Verbal IQ score), .76 (Performance IQ score) and .87 (Full Scale IQ score) with the WASI. Verbal, Performance and Full Scale scores are examined in this study.

Wisconsin Card Sort Test 64: The WCST-64 is a neuropsychological instrument that measures executive functioning, e.g. the ability to plan, control, and execute one's behaviors. The developers of this test stated "Similar to other measures of executive function, the WCST requires (a) concentration, (b) planning, (c) organization, (d) cognitive flexibility in shifting set, (e) working memory, and (f) inhibition of impulsive responding" (Kongs, Thompson, Iverson & Heaton, 2000).

Additional tests that are typically administered in a standard battery, though not included in the current study, include the Goodenough-Harris Drawing Test, the Bender Visual Motor Gestalt Test, and the Rorschach Inkblot Test. If the child has a known or suspected history of substance abuse, the Personal Experience Inventory is administered as well. Three instruments were initially included in the analysis but later dropped due to excessive missing data (i.e. more than 20% missing): the Achenbach Teacher Report Form, Trail Making A&B, and the Wide Range Achievement Test, 3rd Ed.

Once this information was gathered and the assessment completed, the psychological examiner consulted with a clinical psychologist to determine an appropriate diagnosis for the child. This diagnosis was discussed with the intake clinician to ensure agreement, and changes were made if necessary. Through this process, three mental health clinicians agreed upon each child's diagnosis before it was assigned.

Statistical Analysis

Analysis began by looking at multicollinearity, to determine whether certain variables were too similar and, therefore, weighted too heavily in the analysis (e.g. Hair & Black, 2000). Pearson correlations were conducted between the CBCL, the YSR, the MACI and the SIPA. A correlation coefficient of .70 was chosen to determine which variables would be combined, and only two such coefficients were found. The Delinquent scales on the SIPA and CBCL parent reports had a correlation coefficient of .70, so these scales were summed to form a single variable. The .70 criterion was also met with the SIPA Melancholy scale and the CBCL Aggressive scale; however, these scales are conceptually different in what they purport to measure, so each was retained (e.g. Hair & Black, 2000). Other significant correlations were found, though none reached the .70 criterion.

The next analysis involved the estimation and replacement of missing values. Any instrument for which more than 20% of the values were missing was excluded from analysis: because of this criterion, several instruments that were to be included were instead dropped, including Trail Making (35% missing), achievement scores (33% missing), and the Achenbach Teacher Report Form (46% missing). Of the remaining instruments, missing values were as follows: MACI (3%), Wisconsin Card-Sorting Test (6%), CBCL (10%), YSR (15%), SIPA (16%), and IQ scores (17%). Missing values were computed and replaced using the expectation-maximization (EM) technique.

Once the missing values were imputed and the new delinquent variable computed, cluster analysis was conducted using the four self-report instruments: the CBCL, the YSR, the MACI and the SIPA. This involved two procedures (Milligan & Cooper,1987;

Hair & Black, 2000; Huberty, DiStefano & Kamphaus, 1997). First, a hierarchical clustering procedure using Ward's method was performed. This procedure initially considers each subject to be an individual cluster, then combines subjects one at a time in subsequent steps until the entire sample is a single cluster. When the measure of similarity makes a large jump from one step to the next, that step may indicate the most appropriate cluster solution. Second, the cluster centers from this analysis were used as seed points (i.e. starting points) for a nonhierarchical (K-means) analysis, with the number of clusters also determined by the hierarchical method. This analysis involves clustering subjects based on their proximity to the seed points; a different seed point is then chosen and subjects reassigned to determine whether the new solution is optimal. This iterative process is continued until no subjects are reassigned, with the purpose of finding the best solution given a predetermined number of clusters. Because the instruments used had widely varying means and standard deviations, scores were standardized into z-scores before the cluster analyses were run.

A conceptual question at this point concerned the use of both self-report and parent-report instruments to cluster the subjects. Researchers disagree over whether such instruments measure the same traits or different ones; e.g. is there some objective truth about a child that multiple viewpoints can approach, or do parents and children have their own subjective viewpoints that are essentially unrelated? Sattler (2002) addresses these issues by discussing the different biases raters may have: he points out that respondents differ in how well they know the child, their own personalities, what they consider behavior "problems," and their frame of reference (e.g. behaviors across situations, comparisons to other children, etc.). Sattler concludes that parents and teachers are able

to evaluate externalizing disorders, but children are better reporters of internalizing disorders (since, by definition, they are less observable than externalizing disorders). Achenbach argues that multiple informants should be used to examine a child's behavior because "Any reports by any informants may be affected by characteristics of the informants, as well as by their own particular knowledge of the child's behavior...No single informant's reports can provide a complete picture" (1991a, p. 227). Hinshaw and Nigg (1999) also conclude that multiple respondents should be used when possible, stating "It should suffice to realize that multiple perspectives on child problem behaviors are essential for careful assessment and diagnosis" (p. 98). Therefore, both parent and child report measures were used in the current analysis in an attempt to provide a more comprehensive picture and minimize respondent bias.

Chapter 3

Results

Clusters

Based on the agglomeration coefficients from the hierarchical procedure, a five-cluster solution appeared to be the best fit. Although many variables measuring domains such as personality patterns, expressed concerns, and various problems were used to create these clusters, they can be be differentiated based on their relative values on internalizing and externalizing measures. Figure 1 shows where each case—marked by cluster membership—is located based on the sums of their internalizing z-scores (CBCL internalizing + YSR internalizing + MACI Anxious, Depressed, and Suicidal) and externalizing z-scores (CBCL externalizing + YSR externalizing + MACI Substance Abuse Proneness, Delinquent and Impulsive). [Note: All figures and tables are located in the appendix.]

Cluster 1 (N = 22) includes subjects who tend to score higher on externalizing measures and lower on internalizing measures, a combination often associated with Conduct Disorder or antisocial tendencies; this group is labeled CD. Cluster 2 (N = 14) includes subjects who score higher on both externalizing measures and internalizing measures, a state indicating global pathology; this group is labeled GP. Cluster 3 (N = 23) includes subjects who score lower on both internalizing and externalizing measures, suggesting an attempt to look socially acceptable; this group is labeled SA. Cluster 4 (N = 27) includes subjects who, compared to the rest of the sample, show no significant discrepancies on either internalizing or externalizing measures; this group is labeled ND.

Cluster 5 (N = 14) includes subjects who score higher on internalizing measures and lower on externalizing measures, suggesting emotional problems such as depression or anxiety; this group is labeled EP.

The outliers in Figure 1 often occur because fewer than half of the variables used in creating these clusters—including MACI scales that measure personality traits and expressed concerns, and Achenbach scales measuring Social Problems, Thought Problems and Attention Problems—are included in the internalizing and externalizing measures used to create this figure. The fact that these clusters can still be differentiated by measures of internalizing and externalizing behaviors suggests that they are important factors regardless of the variables measured. It also is probable that the additional variables often are related to these internalizing and externalizing characteristics. For example, CD subjects had significantly higher scores on personality traits such as Unruly and Forceful than are other subjects; GP subjects scored higher on measures of Borderline personality traits and reports of childhood abuse; and EP subjects scored lower on measures of Unruly personality traits and social insensitivity. [Significance was determined by group mean scores being more than one standard deviation discrepant from sample mean scores.]

While race was not found to differ significantly between the clusters, the sex of the adolescent was related to their cluster assignment (Cramer's V=.378, $p<.05$), though the relationship was weak. A greater than expected percentage of females were assigned to the clusters involving more internalizing behaviors (i.e. the GP and EP groups), while less than expected were assigned to the other groups. Of particular interest is the finding that half of the GP group was female, despite only comprising 27% of the total

population. That adolescent girls tended to be placed in the internalizing groups is not particularly surprising, given the repeated finding that females tend to report more internalizing problems than males (e.g. Achenbach, 1991c; Cummings, Davies & Campbell, 2001).

An alpha level of .05 was used to determine significant findings for the following statistical tests (One-way analysis of variance for continuous measures, Chi Square for nominal measures).

Cognitive Functioning

Verbal, Performance and Full Scale IQ scores—as well as the discrepancy between Verbal and Performance scores for each subject—were compared across groups using the One-Way ANOVA analysis. Scores on the WCST-64 were similarly compared. No significant differences were found on any of these measures across groups ($p > .10$ for all scores). It should be noted that the sample's mean scores are lower than the normal population's (VIQ=92, PIQ=88, FSIQ=89). The mean difference between Verbal and Performance scores was 3.5, with the VIQ being higher. WCST-64 standard score means ranged from 90-92, with the exception of Nonperseverative Errors (mean = 99), which indicates that the subjects in this sample also performed significantly worse than the normal population on this measure of executive functioning.

Number and Severity of Charges

Legal charges were differentiated by the severity of the charge, i.e. status offenses (meaning it is only a crime because the subject is a juvenile, such as underage

consumption or truancy), misdemeanors and felonies. In addition, each charge was weighted for severity (.5 for status offenses, 1 for misdemeanors, and 1.5 for felonies) and summed for each subject to create a single continuous variable that accounted for both the number of and severity of the offenses. There were no significant differences between groups for number of misdemeanors, number of felonies, or the weighted and summed totals of charges ($p > .30$). However, significant differences were found for the number of status offenses, $F(4, 95) = 3.02$, $p = .022$. A Dunnett C post-hoc analysis indicated that the SA group had significantly fewer status offense charges (mean = .43) than the CD group (mean = 1.32), $p < .05$.

Diagnoses

Because many subjects received multiple Axis I diagnoses, each diagnosis was coded as either present or absent for each subject. In addition, some diagnoses were combined into broader categories: for example, Mood Disorders includes all Depressive and Bipolar diagnoses (including Dysthymic and Cyclothymic Disorders), Anxiety Disorders encompasses all diagnoses from that section of the DSM-IV (e.g. PTSD, Overanxious Disorder of Childhood, etc.), and Substance Abuse Disorders includes all diagnoses of abuse or dependence. Axis II diagnoses—both Personality Disorders and those regarding intellectual ability—were coded separately. Because all subjects were under 18, it was very rare for a Personality Disorder diagnosis to be made; therefore, the majority of subjects who received Axis II diagnoses were found to have traits or features of a personality disorder. These traits and features are included in the following analysis.

It also should be acknowledged that the results from self-report instruments were used to assist in diagnosis. However, final diagnoses also took into account results from other test instruments, clinical impressions from the intake interviews, and previous treatment records from other mental health agencies. Therefore, diagnoses are largely—but not completely—independent from the behavior checklists.

Table 1 summarizes the results from this analysis, providing the percentages of cluster members receiving each diagnosis,

Axis I

Chi-Square analyses indicated that several diagnoses were significantly related to the clusters. For example, the CD and GP subjects were much more likely to receive a Conduct Disorder diagnosis than the other groups (Cramer's V=.545, $p<.05$). When CD diagnoses were combined with Oppositional Defiant diagnoses, significant differences were maintained, with the CD and GP groups continuing to have much higher percentages of subjects with these diagnoses (Cramer's V=.482, $p<.05$). It should be noted that although no EP members received a CD diagnosis, over one-third received a diagnosis of Oppositional Defiant Disorder. This suggests that subjects with significant emotional problems did have externalizing symptoms, though to a lesser degree than those subjects for whom this was the primary complaint. Substance Abuse diagnoses were also found to differ significantly between clusters, with the SA and EP members being less likely to receive such a diagnosis than the other groups (Cramer's V=.346, $p<.05$).

Mood disorder diagnoses were found to differ between the groups (Cramer's V=.507, $p<.05$): every subject in the EP group received a mood disorder diagnosis, as did 79% of the GP subjects. Only 23% of the CD subjects received such a diagnosis, which is indicative of the lack of emotional distress these adolescents experience despite their serious behavior problems. No significant differences were found for Oppositional Defiant Disorder, Anxiety Disorders, Adjustment Disorders, or Learning Disorders. In some cases, this is likely due in part to relatively few of these diagnoses being made; for example, only nine subjects met criteria for a Learning Disorder diagnosis, three subjects were diagnosed with an Adjustment Disorder, and only one was diagnosed with a psychotic disorder.

Lambert et al. (2001) noted that many adolescents diagnosed with CD received comorbid diagnoses; in fact, the majority of them received at least two diagnoses. This held true for the current sample as well: 59% of the subjects were given more than one diagnosis. One-way ANOVA indicated significant differences between groups, as well [$F(4, 95) = 3.05$, $p<.05$.]. A Dunnett C post hoc analysis showed that GP members received more diagnoses (mean = 2.07) than did SA members (mean = 1.26). No other significant differences were found.

Axis II

Significant differences were found between the groups when comparing Axis II diagnoses, particularly those involving Personality Disorders (Cramer's V = .746, $p < .05$). The CD and GP groups were more likely to receive a Personality Disorder diagnosis than the SA, ND or EP groups, suggesting that their problems were more

characterological in nature. Fifty percent of the GP group had traits suggestive of a Cluster B disorder (defined by the DSM-IV as having dramatic, emotional or erratic traits, including Antisocial, Borderline, Histrionic or Narcissistic), as did 36% of the CD group. In fact, 43% of the GP group was diagnosed with Borderline traits, an indication of the severity and pervasiveness of their disorders. All of the SA group's Axis II diagnoses were Narcissistic, which likely resulted from subjects in this cluster attempting to portray themselves in an unrealistically positive manner and subsequently appearing egotistic and grandiose. Thirteen percent of the ND group also received Personality Disorder diagnoses, either Narcissistic or Antisocial traits. Only one subject in the EP group was found to have traits of a personality disorder, that subject being diagnosed with Schizoid traits.

Behavior Scale Totals

The Achenbachs and SIPA each have scales computed by summing other scales: the SIPA summary scales includes Adolescent Domain, Parent Domain, and Total Stress, while the Achenbachs include Internalizing Problems, Externalizing Problems and Total Problems. These summary scales were not used in creating the clusters, but the individual scales were. Therefore, analysis of these scales cannot offer external validation for the clusters, but they can offer support for the decision to include both parent-report and child-report instruments in developing the clusters. Using a One-Way ANOVA, significant differences were found between groups for all summary scales except the SIPA's Parent Domain. This was expected, because the scales comprising the Parent Domain score—in addition to the YSR Somatic scale—were the only ones that did not

significantly contribute to the development of the clusters. The fact that significant differences were found on the other scales indicate that both parent-report and child-report measures played a significant role in assigning subjects to their respective clusters.

Post hoc analyses were conducted to investigate significant differences, with the following findings:

SIPA Scales

The SA group had significantly lower scores on the Adolescent Domain scale than any other group except the ND group. Because Adolescent Domain includes both internalizing (e.g. Melancholy) and externalizing (e.g. Delinquent) measures, it is expected that subjects with either type of problems would score higher than those who deny problems in any realm. The same pattern was found for the Total Stress scale, with the CD, GP and EP groups having significantly higher scores than the others. This suggests that parents of children with behavior problems report similar amounts of household stress regardless of whether the problems are primarily internalizing or externalizing in nature.

Achenbach Scales

Many of the significant differences on the CBCL and YSR are readily apparent, given the tendencies demonstrated in Figure 1 (see Table 2 and Table 3 for means and T-scores for each cluster). For example, the SA group—in accordance with their desire to portray themselves as essentially faultless—had among the lowest scores on all scales. This was particularly true of the YSR, where the SA group's scores were the lowest on

every scale with a single exception: their scores on the Internalizing scale were not significantly different from the CD group's. The fact that the CD group had such low scores on Internalizing relates to the callousness often associated with a CD diagnosis. The CD group also had among the highest Externalizing scores on both the CBCL and the YSR. The EP group tended to have high Internalizing scores on both the CBCL and YSR and low Externalizing scores on the YSR; interestingly, their CBCL Externalizing scores were comparable to the CD group's.

What may be most striking in this analysis is the comparison of the GP group with the other clusters on both Internalizing and Externalizing scales. Their Internalizing scores were comparable to the EP cluster on both the CBCL and YSR, being significantly higher than all other groups. Their Externalizing scores were comparable to the CD cluster, being higher than all other groups on the YSR and higher than the SA and ND groups on the CBCL. Again, the pervasiveness of the pathology in this group is highlighted by these findings.

Finally, the Total Problems scale has some informative results. The YSR is rather straightforward, with the GP group having significantly higher scores than all other groups and the SA group having significantly lower scores. The CBCL is somewhat different: the SA and ND groups tended to have lower Total Problems scores than the others, but there were no significant differences between the CD, GP and EP groups. As with the SIPA, it appears that parents describe their children as equally problematic regardless of whether these problems are primarily internalizing or externalizing.

Chapter 4

Discussion

Despite the fact that the externalizing/internalizing dichotomy is prevalent throughout the study of psychological illness in children, the study of Conduct Disorder has typically focused primarily on externalizing behaviors, undoubtedly due to the nature of the diagnosis. Kazdin's 1996 summary of CD subtyping efforts demonstrates this bias: each of the typologies he mentioned (aggressive versus delinquent; aggressors versus stealers; overt versus covert antisocial behaviors; and child versus adolescent onset) discriminate between different aspects of externalizing behaviors. None of them considers internalizing behaviors important variables. Frick (1998) has hypothesized that the presence of callous and unemotional traits is an important discriminator, but did not consider the degree of internalizing behaviors as much as whether or not they were present. This bias is particularly striking given the extensive research relating Conduct Disorder to other psychological disturbances, including those that generally involve internalizing behaviors (such as anxiety and depression; Lambert et al., 2001). Juvenile offenders are most commonly classified based on the nature of their offenses (Dembo, LaVoie, Schmeidler & Washburn, 1987), despite uncertainty as to whether such divisions are appropriate (Sorensen & Johnson, 1996).

The typology in this paper is different in its concern with internalizing and externalizing behaviors simultaneously when assessing juvenile offenders, a particularly important consideration when disposition and treatment options are considered. The level and severity of externalizing behaviors may certainly inform disposition options

(e.g. probation versus incarceration), but does not speak as clearly to the treatment and rehabilitation aspect of juvenile justice. This study suggests that the level of internalizing behaviors in adolescents is a vital consideration in terms of disposition, but one that has too often been overlooked.

The differences between the groups in this study are apparent—perhaps most clearly from their respective diagnoses—and it seems obvious that these differences would lead to discrepancies in treatment modalities and outcomes. Adolescents who fit the standard CD model—i.e. high externalizing behaviors but low internalizing behaviors—would likely respond less favorably to psychotherapy than those who appear more depressed or anxious (Frick, 1998). Similarly, adolescents who report no significant difficulties in any area undoubtedly require a less intensive intervention than those who have the severe externalizing and internalizing problems indicative of global psychopathology. The necessity of examining internalizing behaviors, and not just the severity of externalizing behaviors, when determining appropriate treatment options is clear.

Although the bias has been to focus on externalizing behaviors when examining the juvenile delinquent population, some researchers have considered internalizing behaviors as well. For example, Sorensen and Johnson (1996) point out that Atwood, Gold and Taylor (1989) took anxiety and depression into account when developing a classification system, and Quay (1987) utilized a factor analysis based on a behavior inventory to identify disparate groups. Sorensen and Johnson's findings, in which the MMPI and the Jessness inventories were used to cluster incarcerated adolescents, were

particularly intriguing in light of the current study. Their results are strikingly similar to those discussed here, despite using different instruments and a different population.

Sorensen and Johnson also identified five clusters, which appear quite similar to those identified in the current study. They included a group who appeared socially alienated and sensation-seeking but not emotionally distressed (analogous to the CD group); a group with significant emotional distress, including anxiety, somatic problems and confusion (similar to the EP group); a group with numerous scale elevations suggesting general disturbance (similar to the GP group); and a group with few scale elevations that appeared emotionally resilient (similar to the SA group). Their fifth group had a number of scale elevations indicating conflict with authority, suspiciousness, thrill-seeking and anger, but will less subjective distress than reported by their general disturbance group; in a sense, this cluster falls in between the other groups, making it somewhat analogous to the ND group.

Cluster analysis is exploratory in nature, and findings are generally limited to the sample on which the analysis was run; in other words, groups discovered in the analysis are not necessarily valid for the general population. However, the similarities in these two studies (and the additional similarities with Quay's 1987 study, in which three groups analogous to those developed by Sorensen and Johnson are described) lend credence to the argument that groups such as these exist in other juvenile delinquent populations. In short, identifying delinquents based on the presence and extent of both internalizing and externalizing behaviors appears to be a valid procedure. The question then becomes: What information can be gleaned from such groupings? Are the groups truly different? If they are, what does this suggest from a clinical and practical standpoint?

The following section examines some of the findings from the current study in light of previous research and theorizing.

Comorbid Diagnoses

The literature repeatedly shows that CD rarely stands alone. In fact, wide varieties of disorders are commonly found to coexist with CD, including ADHD, depression, anxiety, and substance abuse. The current study upheld this finding, with the majority of subjects receiving two or three diagnoses. However, the groups were significantly discrepant in the number of diagnoses their members received: the GP group's global pathology was evident in the fact that they received more diagnoses than any other group, while the SA group's tendency to minimize problems was apparent in the fact that they received fewer diagnoses than any other group. Although past studies have demonstrated that the coexistence of CD with other diagnoses is a common occurrence, they often fail to consider if such comorbidity indicates different "types" of CD. The results from this study suggest that CD with comorbid depression or anxiety may be quite different from CD alone or CD with multiple diagnoses. Future research may discover that co-occurring diagnoses act as discriminators, subtyping CD into useful categories by their very presence.

One diagnosis that is frequently linked to CD—ADHD—was not considered in the current study. This was due to the inherent difficulties in making an ADHD diagnosis based on psychological testing instruments (Gordon & Barkley, 1998). Because such a diagnosis cannot be confidently assigned based on the evaluation conducted by ROAP, ADHD was not included in the current analysis.

Cognitive Functioning

Cognitive deficits in children with severe CD and antisocial problems were discussed and identified as "one of the most robust effects in the study of antisocial behavior" (Moffitt, 1993). However, there were no significant differences found between any of the groups in this study. This is not completely surprising, given that no "Normal" or control group was used for comparison; in fact, the mean IQ scores for this sample were very low in comparison to the normative data, with Performance and Full Scale scores being more than ten points below the normative mean. Their scores are actually similar to the reported scores of CD children in other studies (e.g. Lynam, Moffitt, & Stouthamer-Loeber, 1993). Standard scores on the WCST-64 were also generally 8-10 points below average, indicating that this study's subjects performed significantly worse than most adolescents.

The similarity between the scores achieved in this sample and those achieved by other CD samples supports the notion that the groups are comparable, at least in terms of cognitive functioning. Although many of the subjects in this sample denied engaging in externalizing behavior problems (particularly the SA and EP groups), they may be more similar to CD populations than the normal population; the fact that these adolescents are in court—frequently for multiple charges—further supports this possibility. It is also possible that adolescents with fewer cognitive resources are more likely to end up in the court system, being more impulsive (e.g. Block, 1995) and therefore more susceptible to engaging in maladaptive or illegal ways. If this is the case, there may be CD children with more intellectual resources who avoid legal difficulties, a group not included in the

current analysis. Future research may discover a way to identify and explore potential treatment options for these children.

Parent Stress

Another unique aspect of the current study is the use of both parent-report and child-report measures to cluster children on internalizing and externalizing measures. Other studies that considered internalizing behaviors generally only used self-report measures. As discussed earlier in this paper, multiple viewpoints may provide a more reliable portrait of adolescents; in the current study, CBCL and SIPA reports offered a significant contribution to the formation of the clusters, further supporting the belief that parent reports are helpful in assessing adolescents.

However, there also was evidence that parents were less able to differentiate between a child's internalizing and externalizing behavior problems than their children are (as hypothesized by Sattler, 2002). An interesting finding is that the parents in this sample reported similar levels of personal stress and similar levels of child behavior problems regardless of the manner in which the child's problems were expressed. In other words, they did not appear to distinguish between a child's internalizing versus externalizing problems as explicitly as their children did.

Research suggests that CD may be linked to poor parenting (e.g. Frick et al., 1992; Shelton, Frick & Wootton, 1996; Loeber & Stouthamer-Loeber, 1986; Gardner, 1994), indicating that the parents of these adolescents are struggling even before they are brought into the legal system with their children. Parents are then so besieged by their adolescents' problems that they are even less effective as parents, unable to ascertain and

offer what their children require. This supports the need for family interventions when working with juvenile offenders; the adolescent must not be the only family member in treatment.

Limitations in the Study

The first limitation that must be addressed is the fact that cluster analysis was used, thus limiting the generalizability to other samples and the population as a whole. Although this sample could be grouped into five clusters, a different sample of juvenile offenders evaluated by the same procedures could lead to an entirely different set of groups. This is an inherent weakness in cluster analysis, and is the reason this technique is considered exploratory. However, it is noteworthy that other studies have yielded some similarities to the current study, suggesting that this manner of grouping adolescents may be an effective method in other populations.

Secondly, other factors that have been hypothesized as important to understanding the development of CD were not fully considered in this paper. There was little information regarding the parents' histories or parenting styles, despite extensive research suggesting a connection between parental psychopathology or parenting styles and CD in children. Another factor considered crucial is the age of onset for behavior problems, as studies indicate that earlier onset suggests more pervasive and severe problems, but this also was not addressed. Finally, the connection between ADHD and CD was not examined, as none of the instruments used in the current study could confidently point to an ADHD diagnosis. All of these are factors that may have further refined the clustering procedure and led to more powerful groups.

Thirdly, the utility of these groups was not explored in this study. There is no information on each child's outcome, what treatment was recommended, whether treatment goals were reached, recidivism rates for the different groups, etc. Hypotheses regarding probable treatment outcomes and appropriate interventions can be developed, but whether they hold true is not known. A long-term study addressing this issue would be beneficial to the literature on juvenile offenders.

Conclusion

Although the need to examine internalizing behaviors when evaluating juvenile offenders has been argued repeatedly, a bias towards focusing exclusively on externalizing behaviors remains. This is undoubtedly to the detriment of the adolescents, who in some cases would likely benefit from treatment aimed at relieving emotional distress. The current study clearly indicates that internalizing problems are a crucial consideration when working with juvenile delinquents. While some adolescents appeared to have few problems of any sort (the SA group), others reported having internalizing or emotional problems (the EP group), serious behavior problems with a relative lack of distress (the CD group), or severe global pathology (GP). Clearly, members of these groups require different interventions: the EP group would likely respond much more positively to insight-oriented psychotherapy than the CD group, while the GP group may require intensive services that would be wasted on the SA group.

Cluster analysis is an exploratory technique, and results from this analysis do not have the statistical backing to make statements applicable to the general population (Hair & Black, 2000). However, the clusters found in the current data set are remarkably

similar to those described in a study with a different (though similar) population using different measures (Sorensen & Johnson, 1995). Because of these similarities, the probability that distinct groups that can be differentiated based on internalizing and externalizing variables is certainly improved. Future research may find more efficient ways of categorizing individuals on these variables, perhaps with a different set of measures and instruments. Other differences between groups may be examined, including variables that are theoretically believed to be critical (such as age of onset for behavior problems, family structure, a history of trauma or loss, etc.). Perhaps most importantly, future research should examine treatment options in hopes of finding the most efficacious and appropriate treatment for offenders. With a more complete examination and understanding of juvenile offenders—including not just their behaviors, but also their emotions and concerns—the possibility of successful treatment and rehabilitation is greatly enhanced.

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Table 1: Percentages of Cluster Members Receiving Diagnosis

Cluster	CD	CD+ODD	A&D	Mood	Axis II
CD	59%	82%	32%	23%	41%
GP	50%	64%	21%	79%	50%
SA	4%	17%	4%	44%	13%
ND	15%	33%	33%	44%	11%
EP	0%	35%	0%	100%	7%

Note: CD = Conduct Disorder. ODD = Oppositional Defiant Disorder. A&D = Substance Abuse. Mood = Depressive or Bipolar Disorder.

Table 2: CBCL Scale Total Means (Raw Score/T-score) by Cluster

Cluster	Internalizing	Externalizing	Total
CD	13/58	*29/70*	**59/66**
GP	*22/68*	**33/74**	**78/72**
SA	9/54	15/58	36/57
ND	11/56	19/61	*45/61*
EP	**26/72**	**30/72**	**81/73**

Note: Scores in italics are in the Borderline range, and scores in bold are in the Clinically Significant range (Achenbach, 1991a).

Table 3: YSR Scale Total Means (Raw Score/T-score) by Cluster

Cluster	Internalizing	Externalizing	Total
CD	12/52	23/64	54/58
GP	*28/68*	*26/68*	**82/69**
SA	9/47	9/47	30/46
ND	16/57	18/59	57/59
EP	22/62	16/57	*60/60*

Note: Scores in italics are in the Borderline range, and scores in bold are in the Clinically Significant range (Achenbach, 1991c).

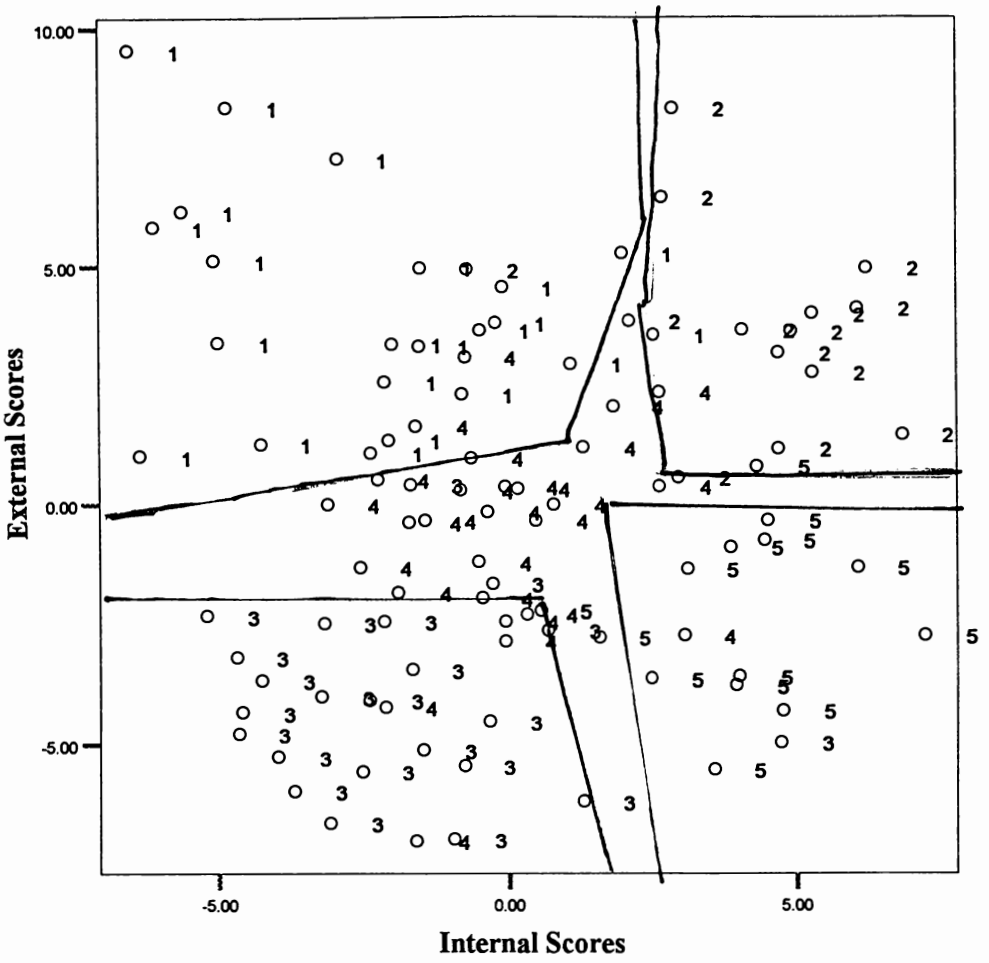

Figure 1. Cluster membership by internalizing and externalizing variables.

Vita

Marc Ethan Castellani was born in Atlanta, GA on January 5, 1970. He was raised in Atlanta and attended The Paideia School from Kindergarten until his high school graduation in 1988. He then attended Davidson College in Davidson, NC, from which he graduated in 1992 with a BA and Honors in Psychology. His honors thesis examined the role of social support in the lives of cancer patients. He earned his doctoral degree in Clinical Psychology from the University of Tennessee at Knoxville in 2002. His predoctoral internship was completed at the VAMC in Memphis, TN. He currently works at Ridgeview Psychiatric Center conducting psychological assessments for the center and for the Ridgeview Observation and Assessment program, a JAIBG-funded project designed to evaluate juvenile delinquents at risk of being placed into state's custody.